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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): James P. Nakas et al.

Attorney Docket No.: R1345-210US

Serial No.: 10/528923

Group Art Unit: Unknown

Filed: 03/23/2005

Examiner: Unknown

Title: BIOCONVERSION OF XYLAN AND
LEVULINIC ACID TO
BIODEGRADABLE
THERMOPLASTICS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

This Information Disclosure Statement is submitted:

- ☒ under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97(c) together with either a:
☐ Statement under 37 CFR 1.97(e), or
☐ a \$180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97(d) together with a:
☐ Statement under 37 CFR 1.97(e), and
☐ a \$180.00 petition fee set forth in 37 CFR 1.17(p).
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

☒ Applicant(s) submit herewith Form PTO 1449-Information Disclosure Citation together with copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The relevance of the attached references is that this is the closest art of which Applicant is aware. Applicant submits that the above references taken alone or in combination neither anticipate nor render obvious the present invention. Consideration of the foregoing in relation to this application is respectfully requested. It is requested that the information disclosed herein be made of record in this application.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or the correspondence is being facsimile transmitted to the USPTO, on September 14, 2005.

Typed Name: Jennifer L. Shafer

Signature:

Respectfully submitted,

Stephen F. Swinton, Jr., Reg. No. 53661
Attorney/Agent for Applicant(s)

Date: September 14, 2005

Telephone No.: (518) 449-0044

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	10/528,923
				Filing Date	03-23-2005
				First Named Inventor	Nakas et al.
				Art Unit	Unknown
				Examiner Name	Unknown
Sheet	1	of	3	Attorney Docket Number	R1345-210US

[illegible][illegible]

Examiner Signature		Date Considered	
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		Application Number	10/528,923		
		Filing Date	03-23-2005		
		First Named Inventor	James P. Nakas et al.		
		Group Art Unit	Unknown		
		Examiner Name	Unknown		
Sheet	2	of	3	Attorney Docket Number	R1345-210US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Aldor et al., "Metabolic Engineering of Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) Composition in Recombinant <i>Salmonella enterica</i> Serovar Typhimurium," Biotechnology and Bioengineering, Vol. 76, Issue 2, pp. 108 – 114, Sept. 2001.	
		Bertrand et al., "Biosynthesis of Poly-β-Hydroxyalkanoates from Pentoses by <i>Pseudomonas pseudoflava</i> ," Applied and Environmental Microbiology, Vol. 56, No. 10, pp. 3133 – 3138, Oct. 1990.	
		Bozell et al., "Production of Levulinic Acid and Use as a Platform Chemical for Derived Products," Resources, Conservation and Recycling, vol. 28, pp. 227 – 239, 2000.	
		Choi et al., "Cloning of the <i>Alcaligenes latus</i> Polyhydroxyalkanoate Biosynthesis Genes and Use of These Genes for Enhanced Production of Poly(3-hydroxybutyrate) in <i>Escherichia coli</i> ," Applied and Environmental Microbiology, vol. 64, no. 12, pp. 4897 – 4903, Dec. 1998.	
		Choi et al., "High-Level Production of Poly(3-Hydroxybutyrate-co-3-Hydroxyvalerate) by Fed-Batch Culture of Recombinant <i>Escherichia coli</i> ," Applied and Environmental Microbiology, vol. 65, no. 10, pp. 4363 – 4368, Oct. 1999.	
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		Imam et al., "Degradation of Starch-Poly(β-Hydroxybutyrate-Co-β-Hydroxyvalerate) Bioplastic in Tropical Coastal Waters," Applied and Environmental Microbiology, vol. 65, no. 2, pp. 431 – 437, Feb. 1999.	
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		S. Y. Lee, "Poly(3-hydroxybutyrate) production from xylose by recombinant <i>Escherichia coli</i> ," Bioprocess Engineering, vol. 18, 397 – 399, 1998.	
		Madison et al., "Metabolic Engineering of Poly(3-Hydroxyalkanoates): From DNA to Plastic," Microbiology and Molecular Biology Reviews, vol. 63, no. 1, pp. 21 – 53, Mar. 1999.	

Examiner Signature		Date Considered	
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		First Named Inventor	James P. Nakas et al.		
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		Martinez et al., "Detoxification of Dilute Acid Hydrolysates of Lignocellulose with Lime," Biotechnol. Prog., vol. 17, pp. 287 – 293, 2001.	
		J. D. McMillan, "Conversion of Hemicellulose Hydrolyzates to Ethanol," American Chemical Society, pp. 411 – 437, 1994.	
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		W. J. Page, "Waste Sources for Polyhydroxyalkanoate Production," National Research Council of Canada, Ottawa, Ontario, pp. 56 – 66, 1996.	
		Parajó et al., "Biotechnological Production of Xylitol. Part 3: Operation in Culture Media Made from Lignocellulose Hydrolysates," Bioresource Technology, vol. 66, pp. 25 – 40, 1998.	
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		Ramsay et al., "Hemicellulose as a potential substrate for production of poly(β-hydroxyalkanoates)," Can. J. Microbiol., vol. 41(Suppl.1), pp. 262 – 266, 1995.	
		Schmack et al., "Biotechnological production and characterization of polyesters containing 4-hydroxyvaleric acid and medium-chain-length hydroxyalkanoic acids," Macromolecules, vol. 31, no. 3, pp. 644 – 649, 1998.	
		Schubert et al., "Cloning of the <i>Alcaligenes eutrophus</i> Genes for Synthesis of Poly-β-Hydroxybutyric Acid (PHB) and Synthesis of PHB in <i>Escherichia coli</i> ," Journal of Bacteriology, vol. 170, no. 12, pp. 5837 – 5847, Dec. 1988.	

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